Climate Action Team

Macroeconomic Impacts of Climate Change Strategies

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Overview

- Preliminary Economic Analysis Of the Strategies
- E-DRAM Model of California Economy
- Jobs and Income Impacts
- Summary

The Strategies

- Proposed and Already Underway Strategies Combined
- All Strategies with Estimated GHG Reductions Included
- Total of 39 Strategies
- Preliminary Information from Agencies and Other Sources
- Represent 92% of 2010, and 133% of the 2020 Target Reductions

Inputs to the Economic Model

- Costs of the Strategies
  - Allocated to Individual Affected Industrial Sectors
- Savings of the Strategies
  - Allocated Mainly to Consumers

The Economic Model: E-DRAM

- Model of the Entire California Economy
- A Computable General Equilibrium Model
- Used for Major Impact Analyses
- Created by a Team from DOF and UCB

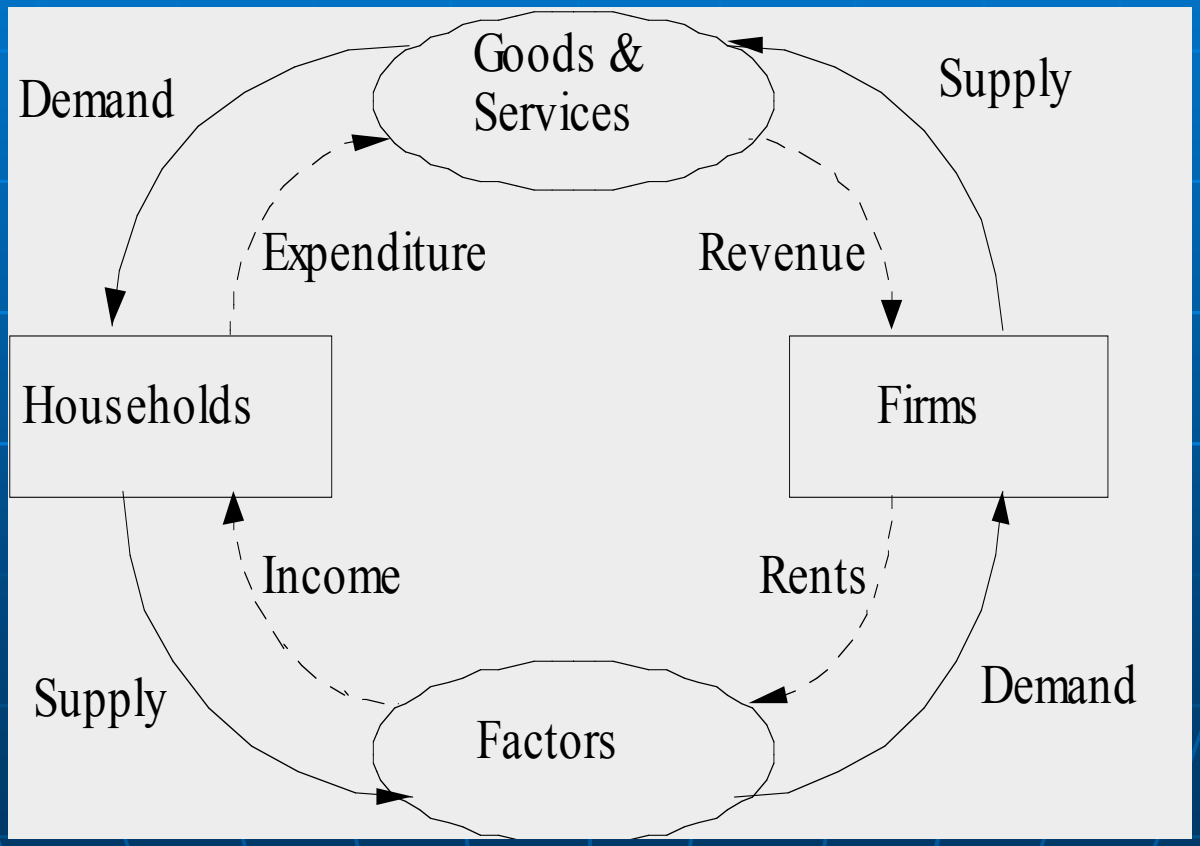
History of the Economic Model

- E-DRAM is a modified version of DRAM with pollution coefficients and more detail industrial sectors
- Open source and in continuous use
- Model and documentation at http://~peter/research/dram03B/edram03.htm

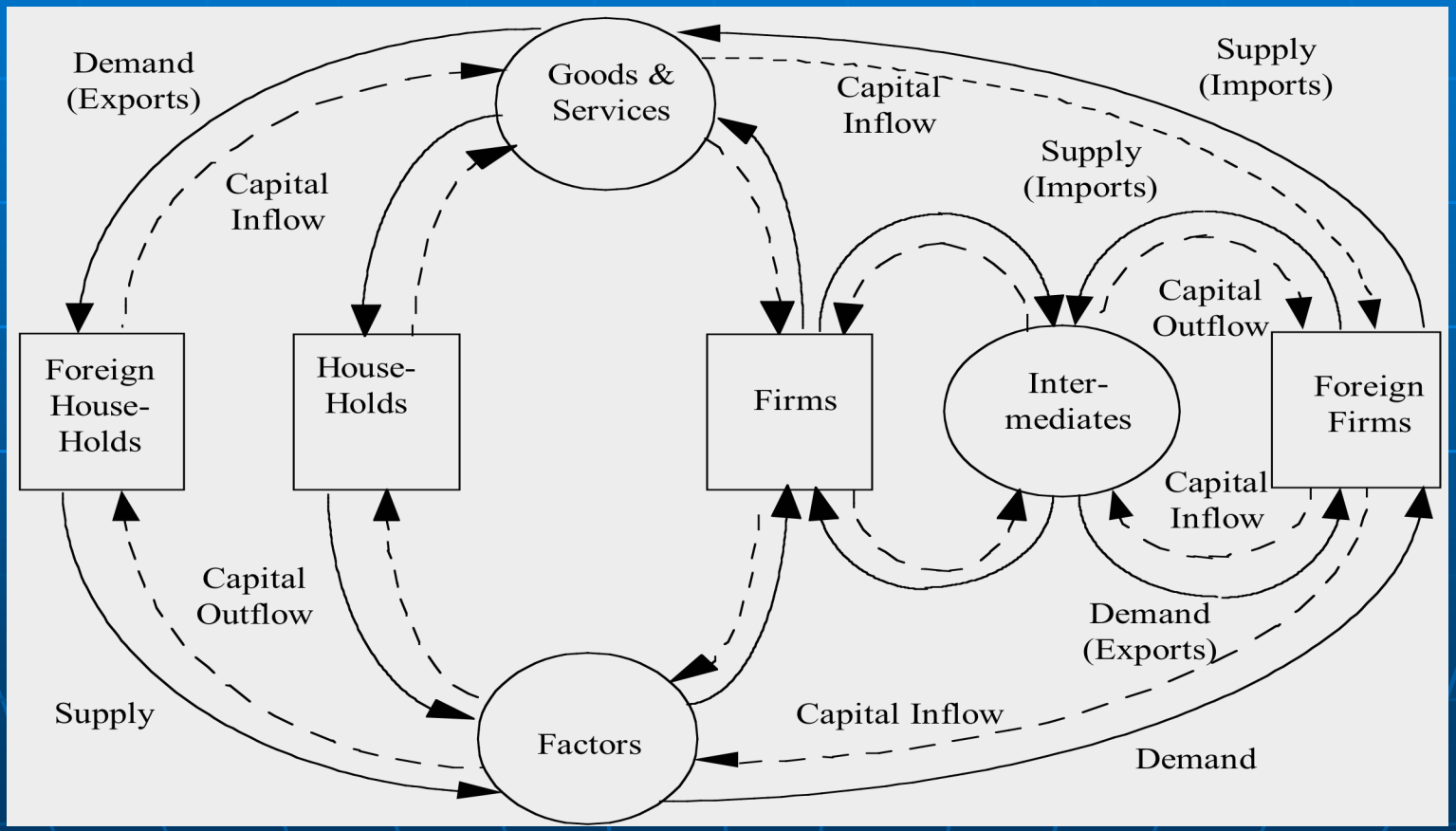
General Equilibrium

- The model solves for the prices of goods and services and factors of production that make quantity demanded and supplied equal
- Both physical goods and money are conserved

The Circular Flow Diagram



The Circular-Flow with Trade and Intermediates



Structure of E-DRAM

158 Sectors

- 92 Industrial sectors
- 9 consumer sectors
- 2 factor sectors (labor and capital)
- 8 household sectors
- 1 investment sector
- 45 government sectors
- 1 rest of the world sector

Case Studies

- DRAM
  - 1/4 cent Reduction in Sales Tax
  - Manufacturer's Investment Credit
  - Income Tax Elimination
- E-DRAM
  - Petroleum Dependence Reduction (AB 2076)
  - State Implementation Plan
  - Vehicle Climate Change Standard (AB1493)

Model Limitations

- 2003 Base from 2003 Input-Output Table of the Economy
- The Sector Detail Limitation
- Out-of-State and Out-of-Country Trade Treated as One
- Other

Cost and Savings Estimates

Year 2020

- Strategies Already Underway
  - Cost of $4.0 Billion
  - Savings of $11.1 Billion
  - Net Savings of $7.1 Billion
- Proposed Strategies
  - Cost of $4.1 Billion
  - Savings of $6.2 Billion
  - Net Savings of $2.1 Billion

Impacts on the California Economy in 2010

	In 2004	Without Strategies	With Strategies	Impacts	% Change
Income ($ Billion)	1,317	1,527	1,529	2	0.13
Jobs (Thousnads)	16,460	17,969	17,988	19	0.11

Impacts on the California Economy in 2020

	In 2004	Without Strategies	With Strategies	Impacts	% Change
Income	1,317	2,128	2,132	4	0.19
Jobs	16,460	20,704	20,787	83	0.40

Preliminary Findings

- The Combined Strategies to Meet the GHG Reduction Targets Result in Net Savings to the Economy
- In 2010 Jobs Increase by 19,000 and Income by $2 Billion
- In 2020 Jobs Increase by 83,000 and Income by $4 Billion
- Meeting the Targets is Unlikely to Adversely Affect the California Economy and Very Likely to Be Beneficial to the Economy

Summary

- Performed A Preliminary Analysis
- Preliminary Costs and Savings Estimates
- Plan to Refine the Costs and Savings Estimates
- Used E-DRAM Model of California Economy
- Meeting the GHG Reduction Targets is Very Likely to be Economically Beneficial